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The Scenery of New Hampshire.

THE mountain scenery of New Hampshire is one of the most valuable pecuniary possessions of her people. It will yield them increasing profits through all coming time if it is rightly cared for and protected from injury and destruction. The timber can all be utilized without destroying forest-conditions on the mountains, and the great manufacturing interests of the state require the preservation of the forests in the regions where the rivers have their sources. There is no important interest of the state which would not receive advantage from the permanent maintenance and intelligent management of her mountain forests. Is it not strange that our people everywhere are so slow to understand the truth that the forests would yield a great deal more timber if they were rightly handled than they do by the haphazard and murderous methods of lumbering hitherto in use? When we speak of forest-preservation multitudes of men still infer that if the forests are to be preserved, no timber can be cut or used. They seem to think that the only way to have timber for the boundless and increasing needs of the country is by destroying the forests, root and branch, and by the methods of lumbering still largely used the timber-producing capacity of extensive areas of land is every year permanently destroyed.

Timber in New Hampshire, and everywhere else, should be cut and used when it is ripe, when it is at its best. That is what it is for. But it should be cut in intelligent and civilized fashion, so that it will be reproduced again and again in a permanent succession of crops. There is no reason, or good sense, or profit in cutting off all the timber at once, large and small. All forest-lands should be carefully protected from fire, so that the forest-floor, and the soil out of which the trees grow, may not be destroyed. Every forest-fire is followed by the growth of inferior kinds of timber. A fire destroys in a few hours the elements of fertility in the soil which have been slowly accumulated by vegetable action through a thousand centuries of time.

The chief reason for preserving the forests of New Hampshire is the fact that they constitute the principal and essential charm of the remarkably beautiful and attractive mountain scenery of the state. If this scenery is rightly cared for and preserved it will in a few years be more valuable than the agriculture of the state. While the mountain forest-lands are in private hands they are rapidly disfigured and rendered unsightly by thoughtless and reckless methods of lumbering. Why should not the state at once take steps for the acquisition of all the forest-lands which are essential to the attractiveness of the scenery and to the maintenance of the flow of the rivers of the state? The people of New Hampshire ought to have faith in the future of their state. If they will protect their forests, let the trees grow, and improve their roads they will in a few years have summer visitors and summer residents enough to utilize all the beauty of their wonderful mountain landscapes. Travelers and towns-people from all parts of the country, and of the world, will gladly pay liberal tribute for the privilege of a summer sojourn among the hills. The revenues of the inhabitants will be largely increased, and their lives rendered easier, broader and more interesting. The use of the natural scenery of New Hampshire is to be the great future interest and industry of her people. It will admit of great development and expansion. We do not need to fret about the abandoned farms. Let them grow up to pine timber again. They will then be more valuable than they are now. Many of them ought never to have been cultivated, and if forest-conditions had been maintained on them they would now sell for much more money than they will bring in their present condition. But the forest will reassert its ancient dominion. One of the best things about the country up there is the way the Pine-trees come in wherever the plow stops for a little while. No need to talk about planting trees in that region.

We presume the intelligent and thoughtful men of the state would be glad to see the mountain forest-lands made a public possession, so that lumbering could be carried on in an orderly way, so that forest-conditions might be permanently maintained, the beautiful scenery preserved, and an ever-increasing multitude of summer visitors attracted to the great mountain houses and to the hill farms. But the population of the mountain regions of the state is scarce and scattered. The owners of the forest-lands live in the cities or out of the state. They do not often see each other, and it is very difficult to bring about any conference, general consultation or common action among them. This is indeed the greatest obstacle in the way of needed action for the preservation of the forest and the scenery. The state should have an officer to attend to these interests and to bring about the general co-operation of the people, in view of the increasing demand for timber, and of the approaching expansion of the summer business, not only at the mountain hotels, but on the hill farms.

THE article by the Earl of Meath, an abstract of which is given on page 338 of this issue, is interesting to Americans because it shows how our city parks appear to the eyes of an Englishman who has had much experience in the management of public pleasure-grounds. Some of our American ways are specially commended by the writer, and one of these is the general practice of entrusting the administration of city parks to small boards of commissioners, with ample and almost unrestricted powers. There can be no doubt but that definiteness of policy, with promptness and vigor of action, is made possible by such a government, and perhaps it never occurred to our friendly critic, who has a civilized respect for professional counsel, that a commissioner would undertake the proper work of a landscape-gardener any more than the director of a railroad would attempt to design a drawbridge or build a locomotive. But just here lies the danger of such an administration. If it is urged that only a densely ignorant man would esteem an appointment by a mayor an adequate preparation for the work of designing a park, the answer is that men of fair business ability who have been made park commissioners have on more than one occasion proved that they considered their own crude notions superior to the carefully studied opinions of recognized experts.

But a few days ago two of the Park Commissioners of this city voted to spend at least $300 000 for the obliteration of one of the most beautiful meadows of Central Park, and that, too, after their attention had been directed to the fact that the great defect of the park is its scanty area of open greensward, and that the greater portion of the turf had been won from the rocks at enormous expense by blasting away the ledges and carting in loam to replace them. They did seek counsel of Mr. Vaux and of Mr. Olmsted, who together designed and constructed the park, and both of these artists not only strenuously opposed the scheme, but gave convincing reasons for their opposition to it; and yet the Commissioners acted in direct violation of the advice they solicited. The meadow is to be sacrificed, if the scheme is not frustrated, in the interest of a sorry collection of animals, although the spot has been shown to be in every way unsuited to their health. It has no water, cannot be properly drained, has not a sunny aspect, is shut off from cool breezes in summer and has no protection against the cold winds of winter. To make ready for the cages 25,000 square feet of rock will need to be blasted out and many of the stateliest trees in the park must be destroyed. The President of the Board admits that he only contemplates a temporary use of the meadow for his colony of beasts, and for this he is willing to spend half a million dollars and leave unsightly wounds upon the face of the landscape, which, with the best of care, cannot be healed in a generation.

No one would think of consulting either of these men about the planning or planting of a country door-yard with a reasonable hope of receiving any advice worth listening to, and yet they have no hesitation about deciding upon critical questions of park design and construction. The fact that they have never had any training or experience in such matters does not restrain them from acting with entire confidence in the soundness of their judgment. They plainly have a supreme contempt for any view which conflicts with their own, and they reject without consideration the advice of the very men who are recognized by all the world as the most competent to give an opinion.

Small park boards, with ample powers, may be preferable to large ones, all things considered. But certainly parks are never free from danger when a majority of the board controlling them consists of two or three men who have no respect for expert opinion, who have no clear ideas of the intricate nature of the problems which must be solved when a park is successfully designed, who do not even understand that any question as to plan or construction can possibly present itself which the average American citizen is not competent to answer off-hand. As a matter of fact, the most serious attacks upon the integrity of our city parks have been organized by the men who were chosen to protect them.

The Philadelphia *Inquirer* of June 23d mentions the sale of 87,000 acres of forest-lands in Pennsylvania to men from outside of the state, and says that the timber is likely to be cut off in a more sensible manner than if these lands were, as hitherto, divided into many small holdings. It is probable that timber lands in the eastern states would be a more profitable investment for capital than some of the enterprises which have been popular during the last few years, but this depends very much upon the feeling and usages of the communities in which the lands are situated. Pennsylvania has, or had very recently, a law for some of the mountain counties of the state which always brings disaster to forests, a statute permitting cattle to run at large. This leads to the practice of starting forest-fires for the benefit of the pasturage, which results in the destruction of much valuable timber, and in the rapid elimination of the fertility of the soil of large areas. Great injury has already been done in the mountain region of Pennsylvania, and it will be interesting to observe the effect of the improved methods of forest-management which the *Inquirer* thinks will be adopted by the new purchasers.

A Japanese Pot Plant.

Readers of garden literature have in late years become familiar with the descriptions and illustrations of the dwarfed conifers of which the Japanese are so fond. Less is known of their dwarfed deciduous trees, a portrait of one of which appears in our illustration on page 335. It is a weeping double-flowered Cherry, in which the Japanese specially delight, and which they grow in great numbers for the decoration of their gardens, often grafting them to assume curious and abnormal forms, and cherishing them year after year among the most precious of their household belongings.

Our illustration was made from one of a large series of photographs of these plants taken in Japan by Dr. William Sturgis Bigelow of Boston, who has favored us with a set of them.

Water in Landscape-Gardening.

Water is an essential element in the beauty of a landscape, whether it is presented as sea, lake, river or running brook, and no landscape-gardening can be perfect without its addition in some form. While all admit the grandeur of the ocean and the beauties of the lake, with its ever-changing surface, in the selection of a country home, that spot should have the preference which combines with other advantages a running stream in the form of river or brook. It should be a rapid stream, boiling over a pebbly bed and noisy enough to lull one into healthful slumber as he lies down to rest at night. Just such a stream is the upper Saco, among the White Mountains of New Hampshire, where it rushes over a rocky bottom, through the farm of the elder Crawford, and fills that charming valley with its murmurs. Such a stream is the Tweed at Abbotsford, among the Scottish hills, whose rippling, so dear to Walter Scott, was the only sound, as Lockhart tells us, that on that summer's day broke the stillness of the death scene when the great man passed away.

He is fortunate who, with other elements of beauty about him, can combine upon his own grounds these of which we have spoken, or in the absence of these, even the cool, sparkling spring bubbling up in some Fern-embroidered dell.

But if one cannot possess either the rushing stream or the trickling rivulet, he may in a degree supply their lack or even supplement them by the construction of artificial lakes and fountains. These may be costly enough; but water can be introduced into any garden in a modest way so as to be within the reach of moderate means. Of course the water supply is the first item to consider in the construction of a fountain. If this is provided by a city or town the character and volume of the fountain need only be regulated by the owner's purse. If water comes from a neighboring brook by a hydraulic ram or by means of a windmill, the fountain of course must be regulated by the size of the reservoir. Where this supply is limited, a weeping fountain, which consists of an upper basin into which the water is brought with just sufficient volume to overflow on every side into a larger basin below, is perhaps to be preferred. By carrying the pipe to a level with the outer edge of the upper basin the water may be thrown a little above the surface in a jet, or it may be allowed to boil up in the basin. In material and design such a fountain may be infinitely varied. An inexpensive arrangement was carried out in this way. The vase, or upper basin, was formed of an irregular shaped block of freestone, nearly circular and some three feet in diameter. This was supported upon three blocks of the same kinds of stone placed with apparent carelessness one upon the other, the lowest resting in the centre of a lower basin, which was circular and some five feet in diameter. The blocks were drilled for the passage of the conduit pipe and the whole was rough-hammered. The spray of the water which dripped from the upper basin quite sufficed to moisten the Ferns and aquatic plants set about its base and the color of the freestone was quite in harmony with its surroundings.

A rustic, spring-like fountain when placed amid suitable surroundings and away from buildings, can hardly fail to please. The supply pipe may be concealed behind well arranged rock-work and water can flow or trickle down from stone to stone into a basin below. If these stones are selected from the borders of a stream and are well covered with moss, or from an old stone wall and are encrusted with lichens, the general effect will be greatly heightened. If the interstices are filled with soil an excellent place is provided for the growth of Ferns and of climbing and drooping plants.

A wall fountain is suitable to be placed in connection with

buildings, especially with those where the basements at least are made of stone. A shallow archway of rough brick or of unhammered stone is needed, the conduit pipe being brought to the mouth of a griffin's or of a lion's head placed at the upper part of the arch with the water pouring into a basin below. Where the water supply is still more limited, an effect which is quite pleasing may be produced by allowing the water to drip from a shell in which the supply pipe is introduced down to a larger one and again into a larger one still. In any case English Ivy or Ampelopsis may be trained about the arch.

There is no limit to the designs and decorations which ingenuity and taste may devise for artificial fountains. One cardinal rule, however, should in no case be violated. That is, the water should not be made subordinate to the architectural display—and this rule should be observed especially when the water supply is limited. The rule is constantly violated, however, in public grounds and on private estates.

Chestnut Hill, Mass. *Daniel D. Slade.*

The Cedars in Europe.

THERE is no difference in the hardiness of the Cedar of Mount Lebanon and of that of the Atlas, when these trees are planted in Europe. The two grow well all over southern Europe, although an exception must be made to the hot and exceedingly dry region on the shores of the Mediterranean, where they cannot exist; for it must not be forgotten that the Cedar is a plant of high mountains, which demands a certain amount of humidity, and which cannot bear an exceedingly dry soil. The northern limit of the region where Cedars can be grown in Europe ascends from the east to the west, a well known phenomenon noticed also in the case of many other plants like the Beech and the Holly which do not support an excessively cold climate; and shown in the fact that the mild, rainy winters which distinguish the climate of the Atlantic coast of Europe are singularly favorable for southern trees. The Cedars follow this line and succeed admirably in the parks of Great Britain. Probably nowhere, not even in Syria nor on the Atlas, can such splendid groups of Cedars, relatively young, although already of imposing size, be found as are seen in the gardens surrounding English villas and castles. There is a famous old plant in the garden of the Museum at Paris, now beginning to fail, which is popularly but incorrectly supposed to have been brought home by Tournefort from the Orient. The sandy shores of the lakes which follow the southern slopes of the Alps afford conditions where the Cedars grow perhaps as well as they do in England, although in the north of Switzerland and in the Vosges the Cedar is occasionally subjected to too severe cold, and so perishes perhaps once every ten or twenty years. In Germany this danger is increased and there are in that country only a few sheltered localities where the Cedar can live.

The Cedar of the Atlas is less commonly cultivated than that of the Lebanon. It must be acknowledged, too, that the former, with its shorter leaves and more compact ramifications, is less agreeable in aspect and more severe in outline than the classic tree of Syria. The largest specimen of the Atlas Cedar which I know is in the celebrated garden of M. Thuret, belonging now to the French Government, and directed by the Nestor of French botanists, the venerable and distinguished Naudin. This tree is seventy-five or eighty feet high or more, and very vigorous. The leaves are short and it is easily distinguished at a glance from the Asiatic variety.

The Deodar has in Europe a more restricted range than the other Cedars. It grows well only where such evergreens as the Laurel, the Arbutus and the Laurel Cherry thrive—that is to say, along the Atlantic coast as far north as southern England and in the region of the lakes south of the Alps. Here it is a tree of great beauty, far more graceful than its congeners of Syria and of the Atlas; it is distinguished by its longer and richer leaves, and by its slender, graceful branches, pendent like those of the Weeping Willow, and by its enormous size. It is, however, on the shores of the Lake of Geneva at the extreme limit of the region where it can be grown successfully as a tree, although north of the Alps it is possible to have graceful young plants during several years. Sooner or later, however, generally once every five to six years, these plants either suffer badly or are killed outright by a severe winter, just as the Araucaria of Chili and the Fir of the Himalayas are killed occasionally.

In order to realize how beautiful trees can be, one should see the Deodar in some of the gardens on the shores of Lake Majiore, growing with the most beautiful evergreen in the world, the *Magnolia fœtida*, which flourishes so well there, and which is covered year after year with its immense flowers, which appear to float on the shining, dark green mass of foliage like Water Lilies on the dark mirror of some lake hidden in the forest. This union of the most beautiful conifer of the east with the most beautiful evergreen of the New World is, without doubt, the most delightful effect of vegetation which that fortunate region of the Italian lakes can offer. The Riviera of Geneva, although hotter, is too dry for the satisfactory development of such delicate trees; but would it not be possible to bring them together in Carolina, or Florida, or Louisiana, in the country of the Magnolia?

Bâle, Switzerland. *H. Christ.*

Notes on North American Trees.—XVIII.
Description of the Wood of Certain Species.

A CRITICAL examination of the wood produced by the trees of the United States formed part of the investigation of the forest-wealth of the country made in connection with the taking of the tenth census. Mr. S. P. Sharples, a special agent of the department, had immediate charge of this branch of the investigation, the results of which appeared in volume ix. of the Final Reports of the Tenth Census, pages 247 to 481.

One object of this investigation was to determine the fuel value of the woods of our trees. It was found impossible, however, to obtain at the time it was made the wood of a few rare trees; and a number of others have been discovered since it was completed. The wood of several of these I have now received from the American Museum of Natural History, in New York, for examination. This material has enabled me, through the liberality of Mr. Morris K. Jesup, the President of the Board of Trustees of the Museum, whose interest in the forest-products of this country is testified to by the superb collection of American woods he has caused to be placed in the Museum, to continue the experiments necessary to determine the fuel value of the woods which were not included in the census report. The calculations have been made by Mr. Sharples, who has used the methods adopted in the Census investigation.

The wood specimens used for specific-gravity determinations were 100 millimeters long and thirty-five millimeters square, and were dried at a temperature of 100 degrees centigrade until they ceased to lose weight. The specific gravity was then obtained by measurement and calculation from the weight of the blocks. The determinations of ash were made by burning small dried blocks in a muffle furnace at a low temperature. The relative fuel values were obtained by taking the percentage of ash from the specific gravity and are based on the hypothesis that the value of the combustible material of all woods is the same.

The woods will be taken up in the botanical sequence of the trees which produce them, the descriptions being made uniform with those of the Census report.

The wood of a few North American trees has not yet been examined. The first of these is *Gordonia Altamaha*, an exceedingly local species of Georgia, and last seen growing in its only known station a hundred years ago. Recent attempts to rediscover it have proved futile and it is now only known in cultivation. Other species whose woods we have not been able to examine yet are *Rhamnus crocea*, var. *insularis*, *Pilhecolobium brevifolium*, *Aralia spinosa*, *Fraxinus cuspidata*, *Quercus Leana*, *Quercus Macdonaldii*, *Quercus Morehus*, *Juniperus flaccida*, *Pinus latifolia*, *Pseudophœnix Sargentii*, and an apparently arborescent Palm of the Florida Everglades, of which I have only seen a leaf and a slender stem. These species either are not represented in the collection, or the specimens do not afford suitable material for such investigations. The wood of Pseudophœnix decays so rapidly after it is cut that it was impossible to determine its specific gravity. *Juniperus flaccida* is a Mexican species only seen within the limits of the United States in a single, very inaccessible region of western Texas. *Pinus latifolia*, the latest addition to the trees of the United States, is only known in a single locality of the Santa Rita mountains of Arizona, and has only been seen by its discoverer, Dr. H. Mayr. The wood is not known. *Quercus Leana*, at one time believed

to be a natural hybrid, but now, perhaps, best considered a species, as it is found occasionally in widely separated regions, is not yet in the collection. The other Oaks are still doubtful California species, of which comparatively little is yet known.

The following species are contained in Mr. Sharples' new investigation:

Helietta parvifolia. Wood hard, very heavy, close-grained; layers of annual growth marked by several rows of minute open ducts; medullary rays numerous, very obscure; color light orange-brown, the sap-wood rather lighter colored; specific gravity, 0.8785; ash, 1.83, 1.90, average 1.87; weight per cubic foot, 54.75 pounds; fuel value, 0.8621. Collected by C. G. Pringle in the valley of the lower Rio Grande.

Koeberlinia spinosa. Wood very hard, heavy, close-grained; layers of annual growth faintly marked with numerous minute open ducts; medullary rays thin and obscure; color dark brown more or less streaked with orange, turning nearly black with exposure, the sap-wood clear, pale yellow or nearly white; specific gravity, 1.1062, 1.1344, average 1.1201; ash, 0.16, 0.25, average 0.21; weight per cubic foot, 69.80 pounds; fuel value, 1.1177. Collected by C. G. Pringle in the valley of the lower Rio Grande.

Ilex monticola. Wood hard, heavy, close-grained; layers of annual growth hardly distinguishable; medullary rays numerous, thin; color creamy white; specific gravity, 0.6746, 0.6379, average 0.6562; ash, 0.41, 0.56, average 0.49; weight per cubic foot, 40.90 pounds; fuel value, 0.6631. Collected by F. H. Boynton, near Highlands, North Carolina.

Ceanothus velutinus, var. *arboreus.* Wood heavy, hard, close-grained; layers of annual growth clearly marked with broad bands of minute open ducts with irregular groups of ducts between them; medullary rays thin, very obscure; color light reddish brown, the sap-wood nearly white; specific gravity, 0.7781; ash, 2.05; weight per cubic foot, 48.49 pounds; fuel value, 0.7622. Collected by T. S. Brandegee on Santa Cruz Island, California.

Rhus integrifolia. Wood heavy, hard, containing numerous scattered open ducts; layers of annual growth distinctly marked with broad, open ducts; medullary rays thin, numerous, very conspicuous; color bright clear red; specific gravity, 0.7500, 0.8160, average 0.7830; ash, 0.20; weight per cubic foot, 48.80 pounds; fuel value, 0.7815. Collected by C. R. Orcutt in Lower California.

Cercidium floridum. Wood light, soft, close-grained, satiny, susceptible of a good polish; layers of annual growth marked by one to three rows of open ducts; medullary rays numerous, thin, conspicuous; color pale yellow faintly tinged with green, the sap-wood rather lighter colored; specific gravity, 0.5217, 0.5149, average 0.5483; ash, 2.66, 2.21, average 2.44; weight per cubic foot, 34.17 pounds; fuel value, 0.5348. Collected by C. G. Pringle in the valley of the lower Rio Grande.

C. S. Sargent.

New or Little Known Plants.

Ptelea aptera.

THIS plant, a native of Lower California, is interesting from the structure of the fruit, which differs from that of the other species of this small North American genus. In other Pteleas the indehiscent fruit is surrounded by a broad reticulate-veined wing, while in *Ptelea aptera* it is turgid, nut-like and glandular, and quite wingless, or with a narrow rudimentary wing only.

Ptelea aptera is a densely branched, pungently aromatic shrub, with slender stems growing to a height of five to fifteen feet and forming dense clusters. It is quite similar in habit and in general appearance to the common *Ptelea angustifolia* of the southern and south-western states, and, except for the fruit, might almost be mistaken for that species.

The fruit is broadly ovate, lenticular, and slightly keeled; it is wingless or nearly so, a quarter to half an inch long, and a quarter of an inch broad; slightly emarginate at the base, tipped with the remnants of the persistent stigmas, and conspicuously glandular. It is two or rarely three-celled. The seeds are oblong and corrugated, with a shining black testa.

Ptelea aptera was discovered in January, 1883, on dry gravelly slopes near the shore at Punta Banda, at the southern end of Todos-Santos Bay, by a party of botanists under the leadership of the late Dr. C. C. Parry. Flowers and remnants of the fruit of the preceding year were found at this time. Dr. Parry read an excellent account of the plant with diagnostic characters before the Davenport Academy of Science in December, 1883. This was afterward published in the proceedings of the Society (iv., 39), the ripe fruit, in the meantime, having been collected by Mr. C. R. Orcutt, of San Diego.

Our illustration (see page 333) is from specimens collected by Messrs. Parry and Orcutt and preserved in the Gray Herbarium of Harvard University. *C. S. S.*

Plant Notes.

Some Recent Portraits.

THE most interesting plant, from a garden point of view, figured in the June number of the *Botanical Magazine*, is the Japanese *Rosa multiflora* (t. 7119), one of the most beautiful of all hardy flowering shrubs. It was first made known more than a century ago, but only found its way into gardens very recently, a fact which adds to its interest, especially as some of its double forms have been for years familiar garden ornaments. A figure of this Rose, from a drawing made by Mr. Faxon, has already been prepared for Garden and Forest and will be published during the present summer with a fuller account of it than it is now desirable to give.

The same number of the *Botanical Magazine* contains a figure of a beautiful warm-house climbing plant—*Allamanda violacea* (t. 7122). This species, which is a native of Brazil, differs principally from the other Allamandas known in gardens in the color of the flowers, which are rich rosy purple. *Allamanda violacea* was cultivated in England as long as thirty years ago. It was soon lost, however. Fortunately, the plant was kept alive in the Botanic Garden of Natal, whence it has been sent to England again, where it flowered at Kew last autumn. It is a very desirable and beautiful plant, demanding the treatment under which the other species flourish, and well worth growing with them on account of the color of the flowers.

There are figures also of a Carludovica (t. 7118) of unknown origin, for which the editor proposes the name of *C. Caput Medusæ;* of *Hemiorchis Burmanica* (t. 7120), representing a genus of *Scitamineæ*, of which only a single species is now known and which possesses little value as a garden plant; and of *Tillandsia amethystina* (t. 7121), from southern Brazil.

Monsieur Carrière describes in the *Revue Horticole* of June 1st a curious semi-prostrate form of the Norway Spruce under the title of *Picea excelsa reflexa* (f. 73). This was one of the interesting plants shown by Croux & Co. at the Paris Exposition of last year. It forms a bush only a few feet high, with irregularly pendulous branches, a habit which particularly fits it to spread over rocks or to plant in rocky situations.

The *Gardeners' Chronicle* of the 31st of May contains the reproduction of a view taken in a Garden of the Scilly Islands, in which is growing a splendid mass of *Puya Chilensis* (f. 115), one of the most beautiful of all Bromeliads. The leaves form a great Agave-like cluster, from the centre of which rises a tall flower-stalk, terminated by a dense head of bronze-blue flowers of exceeding beauty. This would certainly be an admirable plant for California, although it is hardly probable that it would thrive in any part of the eastern states.

There is in the same issue a figure (672) of the male flowers of *Abies bracteata*, here figured for the first time from a specimen grown in the gardens of Eastnor Castle. This tree, an inhabitant of a few sequestered valleys only, in the very heart of the Santa Lucia Mountains in California, is the most limited in its range as it is one of the handsomest of all the Silver Firs. The long, remarkably broad leaves are very striking, and the cones, with their long exserted bracts, are quite unlike those of any other species. *Abies bracteata* is one of the most tender of all the Firs, and there are only a few sheltered situations in Great Britain and in the south of Europe where it has been found entirely satisfactory. It is, unfortunately, quite tender in all parts of the eastern states where it has yet been tried.

The supplement of the *Gardeners' Chronicle* of the same date represents a magnificent specimen of *Dendrobium Devonianum*, grown at Arddarroch, in Scotland, with 864 flowers. This is considered a difficult plant to manage, and it is rarely seen in collections in good condition. The secret of its successful cultivation seems to consist in growing it on rapidly as soon as the flowers have faded and then giving it a long rest in a cool, airy house, that the deciduous leaves may ripen and fall and the pseudo-bulbs become thoroughly matured.

Foreign Correspondence.

London Letter.

NEW PLANTS.—In an appendix to the *Kew Bulletin* for June a list is given of all the new plants introduced into cultivation during 1889. Not only English, but Continental and American publications, have been consulted in compiling this list, which is therefore as complete as is possible. In addition to new plants brought into cultivation for the first time, all re-introductions of any note are included. A plant may have been in cultivation several years before its introduction is recorded. Such plants as Palms and other foliage plants which do not flower until large, are often well known in gardens under garden names, whilst botanists are unaware of their existence. The Kew list is of special value for the following reasons: Reference is given to the publication in which the plant was first mentioned or described. Besides the natural order and country, a brief description of each plant is given. In every case the plant is cited under its published name, although the name may be doubtfully correct; corrections are, however, given where possible. The name of the garden where the plant was first noted is also stated. It will be seen from this that as a reference list for botanists as well as horticulturists this publication is specially valuable. Similar lists were prepared for 1887 and 1888. The cost of each is only twopence, and the publishers are Eyre & Spottiswoode, Fleet Street, London.

Cypripedium Aylingii is one of the prettiest of hybrids. Its parents are *C. niveum* and *C. ciliolare*, and it was raised in a garden at Enfield. In habit and foliage the plant resembles *C. niveum*, but the flower partakes of the characters of both parents. It has broad, slightly twisted and curved petals, which spread to a width of four and a half inches; the sepals are broad, and the lip is formed as in *C. niveum*. The color of the whole flower is pure white, with numerous red spots arranged in lines on the sepals and petals. A plant of it was recently awarded a first-class certificate by the Royal Horticultural Society. Like all the hybrids of which *C. niveum* is one of the parents, *C. Aylingii* is elegant in the form of its flowers and pretty in color. Except in the markings of the flower, there is very little of the character of *C. ciliolare* in the hybrid. I am told that the owner has asked 600 guineas for this hybrid!

Odontoglossum Galeottianum is merely a variety of *O. nebulosum*, differing from the type only in being much smaller in flower and unspotted on the sepals and petals. It was shown here last week as a new plant.

Masdevallia muscosa. The plant at Kew of this exceptionally interesting species flowers freely at least twice a year. It is in bloom now, and its shaggy scapes, curiously formed flowers and highly sensitive labellum attract a good deal of attention. The species is very rare in cultivation. Botanically it is of the highest interest from its being the only Masdevallia in which the character of sensitiveness is known; indeed one might almost say the only Orchid with this character, that mentioned by Darwin as occurring in Australia being practically unknown.

Fig. 45.—Ptelea aptera.—See page 332.

Another of the famous collections of Orchids recently formed in England is about to be sold by auction. I refer to that formed by Mr. F. G. Tautz, at Studley House, Hammersmith. This collection is especially rich in rare Cypripediums, Odontoglossums and garden Orchids generally. It would appear that Orchids, like horses or pictures or other luxuries, may become too expensive, so that with every collector who goes on with them there are others who tire of them, or find the pace too hot. Whilst the number of large representative collections of Orchids in England is probably decreasing, there are, on the other hand, hundreds of small select collections of recent formation. Some amateurs make a specialty of one or two genera such as Masdevallia, Cypripedium, Cattleya or Lycaste, growing all the kinds obtainable. In the interests of horticultural botany, the work of these specialists is valuable from the fact that it is better to do one thing well than to do a dozen indifferently.

Several good varieties of *Hydrangea hortensis* have lately been added to those which for many years have ranked among the most useful of garden plants. The best of the new ones is called *H. rosea*, under which name it has lately been exhibited by the Messrs. Veitch. It appears to be a variety of *H. Japonica* rather than of *H. hortensis*, but the size, compactness and form of the flower-heads resemble those of the last named. Its charm is in its color—a rich blush rose, almost a red. It is by far the most attractive of the Hydrangeas grown here. The leaves are broad, with deeply toothed margins, and a soft, deep green, as in *H. Japonica*. As a market plant this variety is certain to become very popular. Another new addition is one called *H. cyanoclada* in some gardens, but which is properly *H. hortensis*, var. *Mandshurica*. It is distinct in having its stems colored purplish and in the flower pedicels being deep rose-red, contrasting prettily with the creamy white of the flowers themselves. *H. stellata flore pleno* is a curiosity rather than a good decorative plant. In the large temperate house at Kew, Hydrangeas are a pretty feature at this time of year. The varieties of *H. Japonica* are particularly ornamental, as they form loose, elegant bushes, whilst their flower heads are handsome, though not so massive as those of the *H. hortensis* forms. A variety of the last named known as Dr. Hogg is represented just now by a handsome bush four feet through and bearing dozens of heads of white flowers. *H. Thunbergii*, *H. paniculata*, *H. acuminata* and *H. Lindleyana* are also grown in this house. For covering pillars or clothing a wall there are few better plants than *H. altissima*, oftener called *H. scandens* and almost invariably the plant grown as *Schizophragma hydrangeoides*, the genuine plant of this last named Japanese shrub being scarcely known in English gardens. *H. altissima* is hardy in the warmer parts of England and is a most useful wall creeper.

Clematis Stanleyi. This very interesting plant is showing flower at Kew. Although figured in *Hooker's Icones Plantarum*, t. 589, where it is described as the most beautiful of the genus, it does not appear to have ever been introduced into gardens before now. It is a native of Lower Guinea, Macalisberg, and the Transvaal, where it forms a shrub two to four feet high, more or less cæspitose and woody at the base. A correspondent in Barberton describes it as being as handsome and free flowered as *Anemone Japonica*. The flowers are three inches across, and are composed of from four to six broad sepals forming a shallow cup, purple or pinkish in color, with yellow stamens. The heads of fruit are beautifully silvery, "a spray looking not unlike a bunch of ostrich feathers." The leaves are decompound. It is possible that from the high altitude at which this species is found it may prove hardy in England.

The Foxglove as a garden plant is really first rate. Several large beds on the lawn as well as masses in the borders here are simply glorious. If some plant-breeder would take the Foxglove in hand and produce a variety of color in the flowers, what a value this common British hedge-row flower would have in the garden. As it is there are few if any amongst the wealth of herbaceous plants at Kew that can be called superior to the Foxglove as an ornamental garden plant.

London. *W. Watson.*

Cultural Department.

Notes on American Plants.

Galax aphylla, which is closely related to the *Shortia galicifolia*, is a reliable little evergreen, a native of the southern states. Its numerous round, heart-shaped, crenately toothed leaves are at first of a bright, shiny green color, but as the season goes on they turn to a rich reddish brown. The naked scape, which is a foot or more high, bears at its summit a spike of pretty white flowers. This spike is about three inches long by a third of an inch thick. It is a plant that needs time to become established before it will show to its best advantage, but it is not difficult to grow in a thin shade and a fine soil.

Thermopsis Caroliniana, one of the Pulse family from the mountains of North Carolina, has its flowers in a long, thick raceme or spike sometimes ten inches long by more than an inch thick. The plant itself is often five feet high and the flowers are of a rich, bright yellow and in shape resemble those of a pea. These large racemes are admirable for cutting. It seems to be perfectly hardy and is a desirable plant for warm, sunny situations.

Phlox amœna, formerly known as *Phlox procumbens*, is with us the last species to flower. It is a native of dry hills and barrens of Virginia, Kentucky and southward; yet it it is perfectly hardy in southern Massachusetts. The stems grow from six to eighteen inches high and bear a close sessile cyme of pinkish purple, or sometimes white flowers, half an inch wide. It is the more valuable for blooming after the other natives of this genus are out of flower. It does well in any ordinary soil and might be useful on dry banks where few other plants would thrive.

The little one-flowered Pyrola (*Moneses uniflora*), one of the Heath family, closely resembles a Pyrola, except that it has only one flower. The leaves, usually three, are clustered near the base. The flower is one-half to three-quarters of an inch wide, usually white, but sometimes rose colored, and usually nodding on an almost naked stem three to five inches high. It grows in cool woods, usually under Pines. Though somewhat difficult to establish it is well worth a trial. It must have a firm soil in the shade and a mulch of Pine needles about its roots will be beneficial.

Two very interesting Pitcher plants, *Sarracenia flava* (Trumpet Leaf) and *S. Drummondii*, have both flowered. The former is a native of Pine barrens from Florida to North Carolina. Its leaves are trumpet-shaped, large and erect, are often two feet long, and its scape bearing the single flower is about the same height. Its flower is yellow, from three to five inches wide and quite pretty. The latter species is a more southern plant, growing from Florida to the middle of Georgia and westward. Its height is a little more than two feet. The leaf is nearly two feet in length and as beautiful in its variegation at the summit as a flower. The flower, which is single at the end of the naked stalk, is sometimes three inches wide and purple in color. Both species are easily grown in boggy soil, and after being established seem quite hardy. Their beautiful leaves alone would well repay the trouble of establishing them. They must have a wet, sandy or peaty soil and full sunlight. Until well established they should be protected by a mulch of leaves in winter, and even after this they will stand the severe cold better if covered. The covering is not so much to protect them from severe frost as to prevent the thawing and freezing alternately in open weather.

The Lizzard's Tail (*Saururus cernuus*) is a perennial herb not uncommon in swamps. It grows a foot or more high and bears a dense spike of fine white flowers which endure for several days. The spike is six inches or more in length by half an inch thick, at the summit of a naked stem, and might be useful for cutting. It thrives in the shade, in any light moist soil.

Thalictrum purpurascens (Purple Meadow Rue) is quite common in parts of southern Massachusetts, where it is frequently found growing on sandy soil with the Tall Meadow Rue of our northern wet meadows. Its most natural location according to Gray's description is "dry uplands and rocky hills." It is a slimmer plant than the common one, with purplish stem and fewer leaves. It is easy of culture, and would, no doubt, thrive in much drier soil than the other species. The delicate purple and white flowers are quite pretty for bouquets, and the purple stalks, which are scarcely hidden by the thin foliage, make it a pretty garden plant.

Calochortus luteus from California is one of the many little beauties of this rich genus. Its usual height is about a foot, bearing one to three erect yellow flowers over an inch wide. A brownish stripe crosses the lower half of each petal, below which it is covered with short but stout yellow beards. It is a good species for cutting and the flowers are unlike most of the yellow sorts. It is intermediate in time of flowering. It needs a fine, light soil, with protection in winter. Another interesting species quite unlike the above is *C. splendens*, which flowers about the same time. This grows two feet high, bearing in succession five to ten large pale purple flowers two inches wide on ample stems for cutting. In some ways it is much like *C. longibarbatus*, formerly mentioned, but is not so thrifty a plant in this climate, and few of this genus are, but it cannot fail of being admired by all who see it in flower. It should be treated like the others with protection in winter.

Habenaria fimbriata, one of the Purple Fringed Orchids, is a species that is well worthy of cultivation and has been exported to European dealers in considerable quantities. It is often taken for *H. psycodes*, which it somewhat resembles. But its time of flowering is much earlier, and its spike is smaller, with much larger flowers. The lilac-purple flowers are very showy and endure for many days. It is found in wet meadows and swamps, coming into flower the last of June or early in July. It must have a wet or moist situation, and a thin shade is better. For artificial bogs this plant is very useful and it will thrive in the sun in such wet soil.

Iris Virginica (Slender Blue Flag) is a very slender species a foot and a half high, with long, narrow, grass-like leaves and small violet-blue flowers. It is a native of marshes near the coast from Maine to Virginia. It is not so easy to establish as

our common *I. versicolor*, nor so valuable a plant. It does fairly well in a light soil and sun.

Brodiæa grandiflora is one of the finest of the Brodiæas, growing from eight to twelve inches high, and bearing an umbel of five to ten large blue flowers an inch wide, with darker stripes. They not only come in succession, but each endures for a long time. The plant shows much more thrift in this climate than most of this genus. The leaves, at the time of flowering, when they are dried up in some species, are as fresh and green as at any season. We suppose it is not hardy without protection in winter. A light loamy soil in the sun should be selected. This species is one of the last to bloom.

Southwick, Mass. *F. H. Horsford.*

firm perhaps fifteen years ago. The best system to follow in the cultivation of these plants is that of planting them out, the shoots being trained along wires stretched across the rafters, and as the flowers are pendent and usually produced on long, slender stems, a very pleasing effect may be thus procured.

As regards soil the Tacsonias are not very fastidious, and a good sandy loam, well drained, is sufficient for their needs, though the judgment of the cultivator should always be used in deciding this question of soil, as in some localities the loam may be found too heavy for plants of this character, and the addition of about one-third of peat may prove very beneficial under such circumstances.

A Japanese Pot Plant.—See page 330.

Greenhouse Climbers.

THE genus Tacsonia of the Passion Flower family includes some of the most beautiful and graceful climbing plants in cultivation, and being mostly of easy growth, they deserve more general use in the furnishing of conservatories than has been accorded them, at least on this side of the ocean. The Tacsonias are natives of Central and South America in most instances, though one fine variety, *T. Exoniensis*, is of garden origin, being a hybrid between *T. Van Volxemi* and *T. mollissima*, and was introduced by a London

An intermediate temperature (that is, about fifty-five degrees) is quite warm enough, and thorough syringing is necessary to prevent the inroads of red spider, this pest being very partial to the Tacsonias. Probably the oldest and certainly one of the best examples of this family is one of those already referred to, *T. Van Volxemi*, a native of New Grenada, which has large, bright crimson flowers, very freely produced on a well-established plant, and hanging down on slender footstalks from one foot to eighteen inches in length. These flowers are frequently followed by fruit, which has some slight resemblance to an elongated Green Gage Plum, though without

the stone. The fruits, like many others among the Passifloraceæ, are edible, though not specially pleasant in flavor.

Tacsonia Exoniensis is also a very handsome sort, and resembles the preceding in foliage and habit, but the flowers are of a different shade, being inclined to magenta. It is also a good grower and the flowers hang down in the same graceful manner as those of *T. Van Volxemi*.

T. Buchanani is another excellent species, and produces large and showy bright scarlet flowers in great profusion after the plant has attained considerable size.

It is rather a rampant grower and is consequently not so well adapted for planting in a small conservatory as the varieties above mentioned, but where sufficient space can be given for its full development it will prove a remarkably effective creeper. It has large, dark green leaves, which are somewhat tomentose, and divided into three or five lobes, and reminds one quite strongly of some of the strong-growing Passifloras; in fact, this plant has also been named *Passiflora vitifolia* in some catalogues.

The Tacsonias are easily reproduced by means of cuttings or by seeds when the latter are procurable, but cuttings of moderately soft wood and two or three joints in length are readily rooted in a propagating frame. The advantage of using cuttings of three joints in length is found in the fact that they often start away quicker than those which are made with only one or two eyes, as the latter sometimes fail to start on account of the buds being defective.

Stigmaphyllon ciliatum is an admirable summer-flowering creeper from Brazil that deserves a much wider distribution than it has yet received. It is a rather slender-growing plant with medium-sized cordate leaves of a grayish green color and ciliated around the margins. The flowers are produced in rapid succession along the stems and last for a considerable time, being of peculiar form and orange-yellow in color. This plant used to be considered a proper subject for stove treatment, but of late years it has been found that it flourishes in an average greenhouse temperature, and in fact it has proved a beautiful addition to the out-door climbers, at least as far north as Washington, District of Columbia. I saw at the Botanic Garden in that city some years ago a plant against a fence, over which it ran wild, and being well clothed with its bright blossoms, was a truly charming sight. Stigmaphyllon is also propagated by cuttings, and will flourish under similar general treatment to that recommended for Tacsonias.

Holmesburg, Pa. *W. H. Taplin.*

Notes on Shrubs.

ONE of the most useful and valuable shrubby plants for use as an undershrub in waste places, or on embankments where not too sterile and dry, is our native *Rubus odoratus*, better known as the Purple Flowering Raspberry, or in some districts as the Thimbleberry. The last popular name, however, is more properly applied to the Black Cap or Black Raspberry (*R. occidentalis*). The Purple Flowering Raspberry is more suited to be planted in free places, where it may spread, than it is in small well-trimmed garden-beds or shrubberies, because of its habit of spreading from the roots and occupying much ground to the exclusion of lower and less robust vegetation. The foliage, although not of such a handsome green as that of some other equally hardy plants, is yet very attractive by its large size and density, and also for being usually little injured by leaf-eating insects. This plant is naturally at home in hilly districts or further north, where it delights in more or less stony, but fertile, soils. The fruit is usually considered almost worthless, yet it is often of quite a pleasant but peculiar flavor, and in some parts of Canada is sometimes collected and sold by the habitants. But it is so thin and flat, and so soft when fully ripe, that collecting it is not profitable, and it does not bear keeping or much handling. In cultivation here it is usually after the middle of June before the large, handsome, purple flowers appear, and the plants continue to bear some flowers even after the fruit begins to ripen early in August.

The first flowers of this species, however, are preceded two or three weeks by those of the White Flowering Raspberry (*R. Nutkanus*), which is found at home from northern Michigan westward through the Rocky Mountains. Although a native of pretty high latitudes, this species has not been hardy enough at the Arboretum to withstand the cold of our winters when growing side by side with the Purple Flowering Raspberry. Owing to a mild winter and careful covering, the stems were not killed last season, and flowers have been freely produced for the first time. It is possible that the lack of hardiness may be obviated by procuring seed from the extreme northern limits or most severe climate where the plant grows naturally. The seed of those in the Arboretum was collected in Washington Territory. In most of its characters this species is almost equal to a white *R. odoratus*. The silky white petals are not quite so large and long, but the flowers expand from an inch to an inch and a half across. They have a sweeter and more delicate fragrance than the purple flowered species, and, as in the latter, a pleasant resinous quality, which, emanating from the sticky glandular hairs covering the young shoots and sepals, is mingled with the odor of the flowers.

The beautiful white flowered Rocky Mountain Bramble (*Rubus deliciosus*) chiefly differs in habit from both of the preceding species in not spreading over the ground by new shoots from its roots. It is perfectly hardy when growing beside the more tender *R. Nutkanus*, which it far surpasses in beauty of blossom. The flowers are flat and about two inches across, and are usually mistaken for large Wild Roses or the Cherokee Rose by people who have seen the latter. The odor of the blossoms is slight and rather pleasant, although it has been happily compared with the smell of bleaching cotton. It is an early flowering species, and here it is usually in its finest condition of bloom about the twentieth of May. In warm situations the first blossoms appear in the first week of the month. The plants in this region do not appear to produce much fruit, and that only rarely. As they do not spread by suckers or great enlargement from the original shoots they are not easily propagated by root division; and cuttings from the wood do not readily form roots and grow; nevertheless the last is the best method of increasing the stock, unless it is by seed.

Few trailing plants combine a prettier effect of foliage and flower than the Running Swamp Blackberry (*Rubus hispidus*) when in good condition. Although its common name suggests wet places as its natural haunts, it will grow well in any good garden soil, and is especially valuable for planting in rockeries. The flowers are borne throughout most of the month of June. They are effectively set off by the dark evergreen looking foliage, which has an added value in the bright colors assumed in autumn.

The Dewberry (*Rubus Canadensis*) often makes a pretty covering over the ground, but the leaves are not of such a handsome dark green as those of the last species. The Dewberry was long neglected by horticulturists, and has only within a very few years received much attention as a fruit-bearing plant. In a wild state the fruit is very variable in size and flavor, but by selection and under cultivation it is possible to produce berries which, for size and flavor, cannot be distinguished from some of the best blackberries.

The earliest ripe fruit on any of the genus is that borne by the herbaceous Dwarf Raspberry (*R. triflorus*), which in cultivation ripens the first of its amber-colored berries before the middle of June. The fruit is small and of a pleasant acid flavor, but is not abundant. This species, though pretty and delicate, has no peculiar characters which make it of much ornamental or economic value. In flower, foliage and fruit it appears to have closer affinities with the Blackberries than the true Raspberries.

Arnold Arboretum. *J. G. J.*

The Rock Garden.

A BLUE variety of *Viola cornuta*, known as Perfection, and the white variety, Alba, are being extensively used this season by landscape-gardeners in the vicinity of Boston for summer bedding. These Violets are intended to supplement the blue and white *Lobelia erinus*, which seldom blooms well during wet seasons. Both are free and persistent bloomers, and being quite hardy are fit subjects for the rock garden. Rock Roses, *Helianthemum vulgare* and its varieties, are, if not exactly showy, very pretty and interesting. These are easily propagated, either from hard wood cuttings placed in a cool frame in the fall, or soft cuttings in propagating-beds during spring. *Campanula Carpatica* in variety, and *C. rotundifolia*, the true Bluebell of Scotland, are well established with us, sowing themselves freely, and needing to be carefully thinned out to prevent their becoming weedy. *Geranium sanguineum*, bright purple, and *G. Endressi*, bright pink, are the hardiest and best of all these kinds to grow, inasmuch as they take care of themselves, and continue well in bloom throughout the summer.

The double *Lychnis vespertina* is a very old-fashioned plant. It is not common, however, being rather hard to propagate. It can best be increased by cuttings, as the root-stock does not bear division. It is very difficult to get anything but flowering stems for cuttings, and these root very slowly and take a long time to make plants. It is, however, a very desirable plant.

The flowers are of the purest white, excellent for bouquets, and last a long time when cut. The habit of the plant is decumbent, fitting it either for the rock-garden or border, and it produces bloom from June until October. I was surprised to find *Erodium Manescavi* survive even a mild winter. It is now nicely in bloom, and will continue through the summer. Though not particularly showy, it is yet the brightest of the genus, and combines with its rosy flowers handsome fern-like foliage. This can be increased easily by seeds or by division of the root-stock.

Genista tinctoria (Woad-wax) is a pretty, dwarf, prostrate, leguminous shrub of great merit, being an ideal rock-plant, and at the same time excellent for cutting purposes. Hard-wood cuttings taken in the fall, and wintered in a cool frame, root freely in spring. Thousands could be raised in this way in a comparatively short time, and no plant, it seems to me, would be better for covering sunny banks and planting on natural ledges, where they occur on estates. A companion to this is *G. sagittalis*, a very distinct and showy species, which has phylloidal stems and bract-like appendages, taking the place of leaves, and performing their functions.

Among Sea Pinks (*Armeria Laucheana*), known also as Crimson Gem and Pink Beauty, is the best. Though old and common plants, they are great favorites everywhere, never being untidy, for when not in bloom their persistent green leaves always look pleasing. *Silene alpestris* has flowered remarkably well this season. A mass with its elegant star-shaped flowers of the purest white is quite striking. *Achillea tomentosa* is one of the few species of this genus which is not weedy. The flower-heads are a good clear yellow, not over one foot tall. The foliage makes a good green carpet. The Alpine Bugloss (*Ajuga alpina*) is a common species, and the most attractive of the genus, having whorled spikes of lovely gentian blue. It should not, however, be planted in a choice position on account of its liability to overrun smaller neighbors. The path leading to our rock garden takes a zigzag turn through the Ghent Azalea bed. This path is lined on either side with *Myosotis palustris semperflorens*. This Forget-me-not is equally at home in sun or shade, and would make an excellent plant for covering the ground in shrubberies did it not so entirely take possession of the soil wherever planted.

Wellesley, Mass. *T. D. H.*

Notes and Queries on Hardy Plants.

Inula glandulosa is a plant that has been known to gardens about fifty years and is still as scarce as it is beautiful. There is no reason why this should be so, except, perhaps, that it is not sufficiently known. The plant in question is a Composite with bright orange-yellow flowers three or four inches across on stout erect stems two feet high. The flowers have large discs and numerous narrow ray florets and are very ornamental. There is nothing coarse or weedy about *I. glandulosa* as in the native species *I. Helenium*, and it is just possible that the influence of the latter has been prejudicial to the former amongst cultivators of hardy plants. I recently saw a fine *Inula*, which I think was called *I. grandiflora*, but whether a species or a variety of the above I do not know. As the seed came from Herr Max Leichtlin, perhaps he can tell us more of the plant. Certain it is that it is one of the best novelties I have seen lately, and the plant is most promising, as it is easily raised from seed, has bright orange flowers and is perfectly hardy here in Massachusetts.

And now as to *Delphinium Zalil* (*sulfureum*). Mr. Farquahar, of Boston, tells me he saw it at Erfurt last summer fully five feet high, with much branched stems, covered with beautiful lemon-yellow flowers. If this can be done in Erfurt, why not here? Should the plant be biennial or perennial it certainly would be worth growing. I have seen but one lot of plants, and they were about eighteen inches high when about to bloom and much resembled *D. Chinensis* in habit. My own attempts to raise this Delphinium from seed have been failures.

Nor have I succeeded with *Ostrowskya magnifica*, another novelty, the figures of which in English papers raise one's expectations. Nothing is better calculated to cool one's ardor than sowing seed and waiting for plants that never come. It is quite possible that there is no difficulty about obtaining the above plants from seed, if we only knew the conditions necessary, whatever they may be. It appears that good plants of *Ostrowskya magnifica* have thick, exceedingly brittle roots that are often four feet long, so it is obvious, if we are to have them at all, seed is the least difficult way to get them, if it would only germinate.

South Lancaster, Mass. *E. O. Orpet.*

Oilcake for Wire-worms.—When pasture land is taken into a garden, there is usually trouble from wire-worms. A Primrose bed at Wisley was much injured by them. A good gardener told me that if bits of oilcake were sunk in the ground, the wire-worms would eat it, and a great gardening authority said that it killed them. My gardener put a number in a box with some cake, but so far they seem none the worse, but it is a most effectual trap. Pieces about the size of a hen's egg sunk three inches in the earth, with a stick to mark the place, and taken up after three or four days, will be found to have wire-worms imbedded in them, eight to twelve to a piece of cake. We have killed many hundreds. Old stagers know the use of oilcake, and gas-lime is said to be effectual, but with plants in the bed this would be dangerous.

George F. Wilson, in The Garden.

[Why not poison the oilcake? In this country, where a dough of sweetened corn-meal is used as a bait, it is poisoned; and arsenites sprinkled on fresh leaves of clover or elder and laid about a field or garden under boards have proved effective.—ED.]

The Forest.

Notes on the Ligneous Vegetation of the Sierra Madre of Nuevo Leon.—I.

THE Andean Mountain system, continued through Central America, forks in the Mexican state of Oaxaca, the principal or longer branch running on northward parallel with the coast of the Pacific Ocean and the Gulf of California, and not far inland, and the shorter though not less elevated branch diverging northward (precisely speaking north by west), and terminating in the scattered mountains of south-western Texas. Within these two giant arms is embraced the high table-land of Mexico. To the loftier summits, the central backbone of both these mountain chains, is applied the name of Sierra Madre, or Mother Range, the flanking ranges and outlying spurs more or less separated from it by inhabited valleys receiving special names. For some two hundred miles of its extent the eastern Sierra Madre chain is included within the state of Nuevo Leon, or forms the boundary between this state and the state of Coahuila on its west.

Several months of the summers of 1888 and 1889 were devoted by me to attempts to explore this Sierra Madre region with base during most of the time at Monterey—Monterey aptly named, the word telling of the kingly mountains which tower round about this quiet city of white, sunny streets and green, shady parks and gardens; to the eastward Sierra de la Silla, or the Saddle Mountain, with its grotesque sky line only four miles away and 4,000 feet above the plane of the city; on the west the Mitre Mountain, terminating in towers and sharp pinnacles of bare rock, quite as lofty and quite as near; while on the south at scarcely less distance are miles of the Sierra Madre stretching east and west even higher, a bare mountain wall of soft, white lime rock, lichen-stained, terminating in a thin comb, on whose crest are seen waving a few scattered Pines and Palms. The northern face of this mountain wall it is not possible for the foot of man to scale, but we pass around it at either end through cañons plowed out in the soft lime rock by the torrents of countless summers—cañons with vertical walls often hundreds of feet high—and mount by these with severe toil to wooded slopes and summits, only to see higher and higher summits beyond and above us, and to find too often our further advance rendered perilous or impossible by a network of forking cañons.

Across this Sierra Madre range the traveler by train of the Mexican National Railroad between Monterey and Saltillo is borne almost as swiftly and gently as though by the enchanted tapestry of the Arabian Nights. Looking backward and away to the south-east as the train mounts the mesas of Garcia and nears the base of the mountains, he sees several successive ranges with serrated summits rising one above the other and receding far away in the soft blue haze. Soon after passing Garcia station, twenty miles west of Monterey, the train enters a labyrinth of

deep cañons. Slowly and laboriously the engine pants in dragging the train up the hard grades. On every hand, as the train winds through the cañons and crosses their rivulets from side to side, arise steep mountains, their brows 1,000 to 2,000 feet above the road. In their configuration, in their formation, and in the vegetation which they bear, these mountains afford a good illustration of the arid mountains which dot or rather line off at intervals the broad northern table-land covered by the states of Chihuahua, Coahuila and Durango, and parts of Zacatecas and San Luis Potosí—limestone of various qualities showing more or less quartz, its strata contorted in the wildest manner, scarcely half concealed beneath a thin covering of soil which is barely sufficient to support a low dingy green growth of Agaves, Cactuses and desert shrubs. Only in rare places where there has been an accumulation of soil, as in cañon pockets and in hollows about the summits, are seen a few clumps of small trees.

Some thirty miles from Garcia and 3,000 feet above that place the train emerges upon the open table-land, and turning southward skirts for a long distance the western base of the Sierra Madre.

Thus we gain some idea of the character of this mountain chain, which stands with its western base resting upon the inland plains 6,000 feet above the sea, and its eastern base upon the lowlands only 1,500 feet in elevation. From central summits 10,000 feet high its western slope descends gradually by comparatively broad ridges and open valleys, while its eastern is steep and everywhere cut by the most terrific cañons. On its eastern slope and along that base fall the rains which come up from the Gulf of Mexico; and living springs and streams abound there, which condition ensures perennial verdure and considerable forest-growths. Its western slope, on the contrary, being left rainless during most of the year, partakes, as we have seen, of the character of the desert mountains of the interior; rarely are springs or brooks to be found there; and forests are mainly confined to the higher and cooler summits, or to those situations which are least exposed to the sun. Furthermore, the floras of the two sides of this Sierra Madre are quite different, not only as respects woody plants, as will be seen, but herbaceous as well.

To mention (though quite incidentally, because the district lies within the state of Coahuila, yet for purpose of comparison) the ligneous species observed on the mountains about Carneros Pass, on the western side, I may begin with *Pinus cembroides*, because this species appeared to be the one most abundant and widely dispersed. As a small tree, seldom more than twelve or fifteen inches in diameter, low-headed by reason of its sparse growth in the shallow dry soil of the region, it occupies the cooler slopes and summits of the foot-hills, coming down within a few hundred feet of the level of the plains.

Pinus latisquama, growing with it, and choosing especially the dry calcareous bluffs of gulches, is a much smaller tree, is less than a foot in diameter and less than twenty feet high. Its long horizontal branches, with long and slender branchlets bearing tufts of bluish green leaves from which hang on long peduncles the solid and heavy cones, give this tree a peculiar appearance among Pines.

Widely distributed, also, and at various elevations, appears *Quercus grisea*, here more than ever a slow-growing, gnarled, contorted tree, its trunk, even its branches, showing hollows and seams.

About the margins of the higher plains and valleys, where these rise by gentle slopes to meet the foot-hills and fill the recesses amongst them, thin forests of *Yucca Treculiana* lend a striking character to the landscape. The stems of this plant, rather less than a foot thick, rise to a height of fifteen to twenty feet, and bear single heads (or at most but few heads on short branches) of numerous sword-shaped leaves about two feet long. The panicle of flowers is three feet in length and erect; but it appears to be rarely produced here.

On the higher summits a third Pine was met with, presumed to be the tree doubtfully referred by Mr. Watson (Parry & Palmer, 844) to *P. Teocote*. It forms a large tree, similar in appearance to *P. Montezumæ*, and yields much good lumber.

The more shaded and cooler slopes of the higher mountains, especially the ravines with northern aspect, which furrow them, bear dark groves and belts of *Pseudotsuga taxifolia*. With this tree, but following the ravines down toward the base of the mountains, is *Cupressus Guadalupensis*; while *Juniperus flaccida* and *J. tetragona*, var. *oligosperma*, small trees less than a foot in diameter, were found in cañons near their base.

The sunnier and therefore drier slopes of these mountains are covered with a dense growth of shrubs, chiefly Oaks, *Quercus reticulata*, and another, perhaps a new species near *Q. pungens*. In rich cañons the former becomes a tree as elsewhere, and with it are *Q. Emoryi* and *Q. virens*.

The foot-hills are mainly ledges of limestone scantily strewn with soil, and these bear, besides the usual growth of Cactuses, Agaves, etc., a scanty shrubby vegetation composed chiefly of the following species: *Lindleya mespiloides*, in gulches growing to a height of ten to fifteen feet; *Cercocarpus parvifolius*, inferior growths; *Cowania plicata*, a lovely plant when covered with its Rose-like flowers; *Fraxinus Greggii*, with slender stems fifteen feet high and forming thickets; *Arbutus Xalapensis*, in a dwarf state; *Arctostaphylos pungens*, *Microrhamnus ericoides*, *Rhus microphylla*, *Ceanothus Greggii* and *Ephedra aspera*, sometimes six feet high.

Charlotte, Vt. *C. G. Pringle.*

Periodical Literature.

Under the title "Lungs for our Great Cities," the Earl of Meath, who has had experience in such matters, as Chairman of the Metropolitan Gardens Association of London, gives, in the *New Review* for May, an account of the impressions he received during a visit to the chief cities of this country. "A veritable rage for park-making," he says, "seems to have seized the American public. The large towns of the United States and Canada are vieing with each other in the establishment of parks and boulevards. Taxation for these purposes is readily submitted to, and enormous sums of money are now being annually voted on this account."

At Chicago, he was told not only that the Park Tax was the one to which no objection was ever made, but also that officials were constantly being asked why more money was not spent on the parks, "as it was the one expenditure of public money which the people thoroughly appreciated, enjoyed and took pride in." But the author says it is only within recent years that the necessity for having breathing spaces in cities has thus been recognized; so, in our older towns, the more densely populated districts are devoid of those frequent small parks, which alone can give the poorest of the poor a daily breath of fresh air and sight of green leaves. It is with great approval, therefore, that he notes the recent passage by the Legislature of an act for the incorporation and improvement of additional parks in the City of New York, and the appropriation for the purpose of $10,000,000, to be expended in ten years. We wish we could feel as confident as he seems to feel that within this time the whole sum will indeed be spent in pulling down tenement houses, and purchasing sites for numerous small playgrounds. The park areas of many towns, from Boston to San Francisco, are passed in review by Lord Meath, with few words of criticism and many of high approval. Druid Park, in Baltimore, he calls "in some particulars the finest park among those I visited—a lovely specimen of the forest park." Fairmount Park, with the ravine along the Wissahickon River, he says is second in size among the public pleasure grounds of the world, to Epping Forest, near London, only, and, "perhaps, in its particular type of beauty, is second to none." He speaks of the Central Park as extremely artificial, but adds, "notwithstanding this excessive artificiality, Central Park remains one of the most beautiful of gardenesque places. I know nothing prettier of its kind than the view I saw on an October day, standing on the 'terrace,' at the end of the 'mall,' in the Central Park, looking across the artificial lake to the opposite shore, blazing in the glorious colors of American autumn foliage. The finest natural parks, as opposed to artificially-made grounds, in the United States, are, perhaps, those of Druid Hill, Baltimore; Fairmount Park, Philadelphia; Prospect Park, Brooklyn; and Forest Hill, St.

Louis; whilst among the artificial parks, Central Park, New York; and Lincoln and South Parks, Chicago, may be said to rank highest. These two cities have both had to manufacture recreation grounds out of the most unpromising materials. They have had to transport for long distances the actual soil of which their parks are composed, and have had to plant every single tree, shrub and flower within their limits, and make every rise and depression of the ground. These gardens are, consequently, entirely different in style from those magnificent parks which owe their beauty and picturesqueness to nature, and they must be viewed with a different eye, and be judged by a different standard." There is some mistake as regards the Central Park in this description of the difficulties which attended its making. With the exception of two or three ancient Oaks and Willows, there are, indeed, no trees in its lower portion which were not planted, but in the northerly portions there are many of native growth; and here, instead of making rises and depressions in the ground, the landscape-gardener's task was to level some of those which already existed in too great numbers, in order that certain broad, quiet, practically level stretches might be secured. But this means, of course, that the task was even more difficult than the English critic suggests. Again, in distinguishing some of our parks as natural, and others as artificial, Lord Meath does not use the terms exactly as a landscape-gardener would use them. The Central Park, with the exception of one or two features, like the Mall, is distinctly in the naturalistic, not the artificial style. In certain parts, as in the ravine toward the northern end, where the Rhododendrons grow in masses, it looks as though man had done no more than lay out the needful roads, while in other parts, like the sheep-meadow, which was actually formed by blasting out surface irregularities, it looks as though he had merely refined upon and carefully tended a spot which nature had created much in its present shape. What the author really means by the contrast he draws is that some of our parks look wild and others cultivated—some look like untouched natural scenes, and others like natural parks in the technical acceptation of the term.

But, throughout the article, Lord Meath shows that his concern with parks is practical, rather than artistic. He thinks, or, at least, speaks little of their design and much of their position and the facilities they offer for the recreation of the people. In many directions, he finds them better adapted to this end than English parks. Incidentally, indeed, he says that he hopes the wildness of the new parks in our "annexed districts," as compared with the "artificiality"—that is, the true park-like character—of the Central Park, "will, perhaps, encourage New Yorkers to give a little more latitude and freedom to the citizens in the use of their parks." But he may not have remembered, in contrasting London customs with ours, that the greater heat and dryness of our summers render it imperative to limit access to the meadows, if the grass is to be preserved at all; and he does full justice to the facilities afforded for sports in various parts of the Central Park. As he seems to have been here in the autumn, he doubtless missed one of the most delightful scenes that this park offers —a Saturday afternoon in June, when all the greens are freely given over to the school children, and they swarm in thousands everywhere.

In general, Lord Meath speaks with unstinted praise of the way in which American parks are made useful to the people, as well as pleasant in their eyes. From this point of view—as true recreation grounds—he finds in them many arrangements that might advantageously be imitated in England. In London, he says, there is no zoological garden freely open to the public; the small parks are not lighted so that they can be used in the evenings; the children have no swings, merry-go-rounds and goat-carts; nor do our conservatories, our music-galleries and our numerous facilities for athletic sports find a parallel there. Even the "Lohengrin boats," which many of us think grotesque, rather than ornamental, come in for a share of his generously-bestowed praise. The provisions for athletic sports in the Charles River Embankment Park, in Boston, are described at length, and with the highest approval. Moreover, the way in which our parks are managed by small boards of commissioners, "independent and comparatively permanent," he finds much better than the English plan of a large council elected by a popular vote which, in London, cannot undertake "any expenditure exceeding the sum of £50 without a vote and discussion in full council of 137 members." It is cheering to get a word of praise for any municipal arrangement in this city, which we have come to consider as by no means the best governed in the world! The power our Park Commissioners possess to control the thoroughfares, and, in some cases, the building sites in the neighborhood of the parks, is likewise commended. The object of Lord Meath in making the extensive journey whose results he here describes was "not to criticise and find fault, but, if possible, to learn, with a view to the improvement of the London parks," at that time under his charge. Undoubtedly, had his aim been different, he could have found many details to criticise; but it will be a surprise, we think, to most Americans to learn how many things he found, from his own point of view, that were worthy of imitation. In some ways, Americans are conceited enough; but as regards all matters of municipal administration they are very apt to think that "they order these things better in France," and in every other part of Europe, too. Many travelers, seeing the free way in which Londoners are allowed to walk on the grass in their parks, come home to say that the pleasure of the people is better considered there than here. Nothing could be more useful in opening their eyes to the real facts of the case than this clear and comprehensive article of Lord Meath's. Nor will it fail to surprise many by its mere enumeration of the number and extent of American parks, and its account of the zeal and discretion with which they are being enlarged and improved.

Correspondence.

Hardiness of Indian Azaleas.

To the Editor of GARDEN AND FOREST:

Sir.—Your note on the Indian Azaleas in Central Park reminds me that I had a fine plant of the variety known as Alba, and grew it for years with no suspicion that it was hardy until ten or fifteen years ago I discovered it by accident. My plant stands by the porch on the east side of the house, and during the ten or twelve years since it has been there it has failed to flower but once, and then a cold wave late in the spring swept down upon us and killed the buds, just as the March weather killed all the Peach-buds this year. My plant is of oblong shape and nearly five feet through the longest way. It was covered with bloom this spring, and judging from the exclamation of the occupants of the hundreds of carriages which passed by, it must have seemed to them, as it certainly did to me, a strikingly beautiful object.

Montclair, N. J. *E. Williams.*

Forestry and Irrigation.

To the Editor of GARDEN AND FOREST:

Sir.—The reason that more attention has not been given to the articles on Institutions for the Arid Lands, in the *Century Magazine*, is partly in the fantastic element in them, the quality of unreality, as in the passage which affirms, regarding the people of those regions, that "on this round globe, and in all the centuries of human history, there has never before been such a people. Their love of liberty is unbounded, their obedience to law unparalleled, and their reverence for justice profound; every man is a freeman king with power to rule himself, and they may be trusted with their own interests." It is encouraging to hear of the superior civilization of our fellow-citizens of the far west. I have long been aware of their many good qualities, but had not known before that absolutely no other people equaled them in obedience to law. It seems queer that among such people there should be "a bitter, relentless war, disastrous to both parties," between capital and labor, and that many farming corporations and water corporations have been almost destroyed by unfriendly legislation and by judicial decision, as we are informed a little farther on in the same article. The information that "when the physical powers of nature are employed, and human powers engaged in their control, men cannot be enslaved; they assert their liberty and despotism falls," is curious, and if true may be important. Is there any evidence in all Major Powell's writings that he has ever studied forestry subjects? Did he not rather begin by inventing theories of his own which have no basis in the observation and comparison of phenomena? The indifference to the facts upon which forestry is founded is palpable in all his later writings that I have seen. And as to feeling, a man with much feeling for trees would not set fire to a grand forest, or even to one noble tree, and then constantly tell of it with so much zest. Whatever may be the reason, Major Powell's voice has not been heard in recent years in aid or encouragement of the friends of the forests, but in opposition to their efforts.

Washington, D. C. *L. W.*

Notes.

Remarkably fine Nectarines from Jobstown, New Jersey, have been selling in this city at from four to six dollars a dozen.

Local journals state that Pecan-nuts have recently come for the first time into the markets of Vienna. They were called by their introducers "Indian nuts," but, their origin being unknown to the public, the term has quickly become corrupted into "India nuts."

Within the past ten years the park area of this city has increased from 1,094 to 5,000 acres. Of course, most of the increase is included in the so-called "annexed district," where the parks, although containing beautiful passages of natural scenery, have not yet been definitely treated by the landscape-gardener.

The large Japanese Lilac, *Syringa Japonica*, never flowered as well as it has this year, which seems to indicate that the tree will improve in its flowering qualities as it grows older. The creamy white inflorescence is so large that it makes a good show at a distance above the deep green leaves, and this fact also adds to its value.

According to the *Revue Horticole* the best new Rose of the year which has appeared in Paris is the variety on which has been bestowed the somewhat cumbersome name of La France de 1889. It is a seedling from La France with flowers equal in size to those of Paul Neyron. The color of the flowers is described as a soft rose-magenta, and they reach even on the young plants a diameter of six inches.

In our London letter, on another page, Mr. Watson has a good word for the Foxglove as a garden plant in England. It is strange that this flower is not more generally used in American gardens. Nothing can be more effective than the tall spikes of the Foxglove at a little distance when scattered singly or in small groups with a background of shrubbery or dark foliage. A close inspection, too, will show that the individual flowers are not only beautiful in form, but exquisitely delicate in their color markings.

The "bent wood" furniture exported in such quantities from Austria is manufactured from the wood of the Beech, which, after being sawed into long strips, is turned into round rods. These, on exposure to the action of superheated steam in an air-tight case, become so pliable that they can be bent by hand to the iron patterns. The drying occupies several days, after which but little labor is needed to combine the pieces into articles of furniture. Almost the only rocking-chairs one ever sees in Europe are made of this "bent wood."

No Azalea is more beautiful than *Rhododendron* (*Azalea*) *arborescens*, which is at home along the smaller streams among the foot-hills of the North Carolina mountains, and which has been figured already in this journal (i. 140, fig. 64). The pure white flowers are not viscid like those of our Swamp Honeysuckle (*R. viscosum*), and the bright scarlet stamens and pistil add much to their attractiveness. Their fragrance, too, is delightful, and the leaves when drying exhale the perfume of new-mown hay. The plant comes into bloom later than other Azaleas, and this year the flowers in the neighborhood of this city lasted until the 4th of July.

The principal illustration of the *Revue Horticole* of the 16th of June is devoted to a group of single Chrysanthemums to the beauty of which Monsieur André calls especial attention. These charming flowers, which possess ornamental qualities of the highest class, have been very much neglected in this country in the rage for the double-flowered varieties which have become so fashionable of late years. A single Chrysanthemum flower cannot, of course, be compared in any way with one of the great double flowers. They are very beautiful, however, and add so much to the variety of a collection that it is surprising they are not more frequently cultivated.

We have more than once spoken of Fraxinella (*Dictamnus Fraxinella*) as an old-fashioned garden plant, now almost forgotten, which should again become popular on account of the delicious fragrance of its flowers and their property of emitting a volatile oil in such quantities that it may sometimes be ignited by a match even if held at a little distance. The *Illustrirte Garten Zeitung*, of Vienna, recently called attention to the same facts, saying that the plant had actually been regarded by some in former times as the "burning bush" of Moses. It grows wild in the Austrian Alps, where in rocky woodland nooks it attains a height of more than three feet; and the writer in question takes it as a text to plead the cause of the many indigenous plants which, it seems, in Europe as well as in America, are ignored in favor of foreigners no whit more beautiful than they.

According to a note in the June issue of the *Revue de l'Horticulture Belge et Etrangère*, there is in the gardens of the palace at Versailles an Orange-tree more than 450 years old. It is said to have been the first introduced into France, and is known as the "Grand Connétable." The seeds from which it grew were sown at Pampelune about 1416 by Eléonor of Castile, wife of Charles the Third, King in Navarre. Later the tree was brought to Chantilly, then to Fontainebleau, and finally, in 1684, was added to the collection of Versailles. The handsomest Orange-trees, grown in tubs in France, are those in this collection and in those of the gardens of the Tuileries, and of the Luxembourg Palace in Paris. The gardens of the Palace of Compiègne still contain fifty large specimens, brought there during the reign of Napoleon I. There are also collections of these curious old Orange-trees supposed to be several centuries old in a number of private gardens belonging to various French chateaus. They are always carefully tended, and produce year after year surprising crops of flowers and a good deal of fruit, considering how long their roots have been cramped within narrow quarters.

Mr. Barr Ferree, writing in the *American Architect and Building News*, describes an interesting bit of Aztec construction, the dome of a building called the Sondorhuasi, at Azangaro, in Peru. An ancient Spanish historian, writing of such roofs, says they "are of straw, but so artfully laid on that, unless destroyed by fire, they will last many ages." This verdict is certainly justified by the roof in question, which is still in good condition, although known to have stood for more than 300 years. It "is formed of Bamboos of equal size and taper, the larger end resting on the top of the walls. They are bent to a central point over a series of graduated hoops also of Bamboo. At the points of intersection the vertical and horizontal Bamboos are bound by fine cords of delicately braided grass. On this skeleton is a fine mat of the braided epidermis of Bamboo or rattan without seams, which may have been braided in position. It is worked in colors and panels conforming with the spaces between the framework, which is itself painted. An open and coarse matting fastened with a fleece of finest ichu, depending like a heavy fringe outside the walls, is placed over this. Then comes a transverse layer of coarse grass or reeds, then ichu and so on, the whole forming a slightly flattened cone. The projecting ends of the ichu layers were cut off sharply and regularly, producing the effect of overlapping tiles."

The answer recently given in the Boston *Transcript* to a correspondent who had asked, "What are the legal rights of owners of trees abutting streets and sidewalks?" may be of interest to others, as there is a general belief that these rights are narrower than is actually the case. According to the *Transcript*, in the state of Massachusetts at least, "a street is simply a strip of land set aside for the common good—a highway over which every one has a right to pass. But the public does not own it; it has simply the right of way over it. The fee usually belongs to the owners of the abutting land, who have a right to make any use of the land within the limits of the street which does not interfere with the public's right of way; for instance, the owner of the fee may cut the grass growing by the roadside, gather the fruit growing upon trees within the limits of the highway—the trees are his property. For public convenience towns and cities are required to keep all public highways within their limits in a condition that shall insure the safety and convenience of people lawfully traveling thereon. Cities and towns have no further rights or authority in the streets and highways than simply to discharge the duty imposed upon them by law to make and keep in repair the surface of the street and to remove anything which obstructs travel or renders it unsafe." A passage from the public statutes is then cited which declares that municipal officers may grant permission to retain or to plant trees on the highways in proper positions, that they shall be considered the private property of those who plant them, but that if complained of and proved to be nuisances their removal at the owner's expense may be ordered. In 1867 a suit was brought against a superintendent of streets in Bristol County for allowing the branches of a tree on the highway abutting the plaintiff's land to be cut to permit the moving of an engine-house. The verdict was given for the plaintiff, and the Court remarked, "This enactment has limited in an important manner the powers of highway surveyors. Shade trees are no longer liable to be treated as a nuisance and lopped or cut down at the discretion of every such officer. They are private property, to the ornament and shelter of which the owner of an adjacent estate is entitled, and they cannot be interfered with except upon due process of law, as marked out in the statute."